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WATER SUPPLY OUTLOOK

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

for

COLORADO and NEW MEXICO

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE and

COLORADO STATE UNIVERSITY
STATE ENGINEER of COLORADO
and STATE ENGINEER of NEW MEXICO

Data included in this report were obtained by the agencies named above in cooperation with the Bureau of Reclamation, U.S. Forest Service, National Park Service and other Federal, State, and private organizations.

SPECIAL MEASUREMENTS 1964

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Water Supply Outlook Reports:

CALIFORNIA -

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from advance estimates of the streamflow.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, up to 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

Streamflow forecasts are obtained by a comparison of total or maximum snow accumulation, as measured by snow water equivalent, to the subsequent spring and summer or snowmelt season runoff over a period of years. The snow water equivalent measured in selected snow courses provides most of the index to the streamflow forecast for the following season. More accurate forecasts are usually obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast procedure. Early season forecasts assume average climatic conditions through the snowmelt season.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions. Soil Conservation Service Reports may be secured from Water Supply Forecasting Unit, Soil Conservation Service, P.O. Box 2807, Portland, Oregon 97208.

PUBLISHED BY SOIL CONSERVATION SERVICE

REPORTS	ISSUED	LOCATION	COOPERATING WITH
RIVER BASINS			
ESTERN UNITEO STATES	MONTHLY (FEBMAY)	PORTLANO. OREGON	_ ALL COOPERATORS
SASIC DATA SUMMARY	OCTOBER 1	PORTLANO, OREGON	_ ALL COOPERATORS
TATES			
ALASKA	MONTHLY (MARMAY)	_ PALMER. ALASKA	ALASKA S.C.D.
AR I ZON A	SEMI-MONTHLY (JAN.15 - APR.1)	_ PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORAGO ANO NEW MEXICO	MONTHLY (FEBMAY)	FORT COLLINS, COLORAGO	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IOAHO	MONTHLY (JANJUNE)_	_ BOISE, IOAHO	IOAHO STATE RECLAMATION ENGINEER
MONTANA	MONTHLY (JANJUNE).	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
NEVAOA	MONTHLY (JANMAY)	RENO, NEVAOA	
ORE GON	MONTHLY (JANJUNE)_	PORTLANO, OREGON	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH	MONTHLY (JAN JUNE)_	_ SALT LAKE CITY, UTAH	UTAH STATE ENGINEER
WASHINGTON-	MONTHLY (FEB. JUNE)	_ SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEBJUNE)	_ CASPER. WYOMING	WYOMING STATE ENGINEER
	PUBLISHED E	BY OTHER AGENCIES	
REPORTS	ISSUED		AGENCY
BRITISH COLUMBIA	MONTHLY (FEBJUNE)		ES SERVICE, DEPT. OF LANOS, R RESOURCES, PARLIAMENT BLOG., CANAOA

CALIF. DEPT. OF WATER RESOURCES, P.O. BOX 388,

SACRAMENTO, CALIF.

___ MONTHLY (FEB.-MAY)____

WATER SUPPLY OUTLOOK Federal-State-Private Cooperative Snow Surveys Early Season Snow Report

for COLORADO

Snow Survey Section Soil Conservation Service Colorado State University Fort Collins, Colorado

January 2, 1964

Report Prepared by Jack N. Washichek Donald W. McAndrew Soil Conservation Service

	Current Information			Pas			
Snow Course	Date	Snow	Water	Water	Water Content in Inches		
	of	Depth	Content	January 1	Last	February 1	
	Survey	Inches	Inches	Average	Year	Average	
Berthoud Summit	12-30	29	4.8	8.2	3.2	12.0	
Columbine Lodge	12-30	28	4.6	8.5	3.2	15.3	
Fremont Pass	12-30	25	2.9	5.9	2.4	10.3	
Mesa Lakes	12-30	21	4.1	*	3.6	10.2	
Porphyry Creek	12-30	29	5.1	7.1	4.2	10.0	
Red Mountain	12-30	36	7.5	*	6.5	14.9	
Spud Mountain	12-30	15	3.1	10.9	5.8	16.9	
Tennessee Pass	12-31	13	1.3	3.8	2.0	6.9	
Two Mile	12-30	16	2.4	6.7	2.2	7.8	
Upper San Juan	12-27	25	4.8	11.1	9.8	21.8	
Vail Pass	12-31	22	3.2	5.0	1.8	11.1	
Wolf Creek Pass	12-27	22	4.5	10.3	7.2	19.5	
Wolf Creek Summit	12-27	24	4.7	11.9	8.9	17.6	

* - Less than 5 years record

The first snow survey of the season is not optimistic. No area in the state has even a normal snow pack. Numerous areas have had less than half of the normal snow fall.

Carryover reservoir storage is less than a year ago. Storage will be of very limited assistance except on the South Platte Drainage. This area still has some storage although considerably less than last year.

Soil moisture stations indicate mountain soils are generally dry.

Unless the snow fall is much above normal this year, there will be a severe water shortage this summer.

This first report does not indicate a heavy snow year, however, lots of time remains to build up the much needed snow pack.



WATER SUPPLY OUTLOOK

Federal-State-Private Cooperative Snow Surveys Special Snow Report for

Colorado and Wyoming

Soil Conservation Service Snow Survey Section Colorado State University Fort Collins, Colorado

May 15, 1964

Report Prepared by Jack N. Washichek Donald W. McAndrew Soil Conservation Service

		Current Information			Past Record		
Snow Course	Date	Snow Depth	Water Content	May 15	May 15	May]	
		In Inches	In Inches	1963	Avg.	Avg.	
Colorado							
Cameron Pass	5-14	80	34.6	11.8	25.8	25.6	
Willow Creek Pass	5-14	16	6.7	0.0	7.1	11.5	
Park View	5-14	11	4.1	0.0	2.2	6.5	
Columbine Lodge	5-15	44	20.7	5.4	14.4	21.3	
Berthoud Summit	5-15	47	18.9	6.0	22.8*	20.2	
Red Mountain	5-14	70	28.8	9.8	30.8*	25.6	
Fremont Pass	5-15	43	14.5	6.3	16.6	18.6	
Tennessee Pass	5-15	8	3.6	0.0	. 0.0%	6.8	
Vail Pass	5-15	30	13.0	0.5	11.2*	16.8	
Porphyry Creek	5-15	52	22.8	0.0	14.4*	16.7	
Mesa Lakes	5-13	42	16.2	0.0	11.8*	14.4	
Wolf Creek Pass	5-14	34	15.1	0.0	13.4*	25.4	
Wolf Creek Summit	5-14	61	21.0	19.3	30.5*	30.5	
Spud Mountain	5-14	44	17.0	7.7	20.7*	21.2	
Upper San Juan	5-13	41	18.7	3.7	26.0%	30.3	
Two Mile	5-14	45	15.3	8.9	17.7	17.2	
University Camp				5.1	22.6	25.1	
Milner Pass	5-14	34	12.8	0.0		10.5	
Wyoming							
Bottle Creek	5-14	26	11.4	0.0	3.7	10.7	
Webber Springs	5-15	38	15.7	5.1	9.3	16.1	
Old Battle	5-15	84	34.9	21.9	29.8	34.1	
No. French Creek	5-14	100	43.1	23.6	31.1	32.4	
No. Barrett Creek	5-14	67	27.0	10.8	18.3	19.4	
Ryan Park	5-14	27	12.3	0.0	1.7	7.4	

* Less than 10 years of record.

SNOW COVER

Cool temperatures and the late spring have held up the normal rate of melt on our snow pack. This situation is especially true in the higher elevations. This situation makes the snow pack look especially good for this time of year.

FORECASTS

Even though the snow pack is above or near normal for May 15th the streamflow forecasts will not change materially from those issued May 1, due to the deficient streamflow for April and the first 15 days in May.



WATER SUPPLY OUTLOOK

Federal State Private Cooperative Snow Surveys
Special Snow Report
For
Colorado and Wyoming

Soil Conservation Service Snow Survey Section Colorado State University Fort Collins, Colorado June 1, 1964

Report Prepared by Jack N. Washichek Donald W. McAndrew Soil Conservation Service

		Current Infor	Past Record			
Snow Course	Date	Snow Depth In Inches		June 1 1963	June l Avg.	May 1 Avg
Colorado						
Cameron Pass Willow Creek Pass Park View Columbine Lodge Berthoud Summit Red Mountain Fremont Pass Tennessee Pass Vail Pass Porphyry Creek Mesa Lakes Wolf Creek Pass Wolf Creek Summit Spud Mountain Upper San Juan Two Mile University Camp	5-27 5-27 5-27 6-01 5-27 5-28 5-28 5-28 5-28 5-26 5-26 5-26 5-26 5-28	46 0 0 0 22 27 16 0 2 25 0 0 34 15 3 20	21.7 0.0 0.0 0.0 8.5 11.2 5.4 0.0 0.5 9.9 0.0 0.0 14.1 6.0 1.5 7.6	2.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	20.2 2.8 0.1 4.6 17.4* 9.8* 4.6* 10.4* 6.3* 23.9* 14.2 	25.6 11.5 6.5 21.3 20.2 25.6 18.6 6.8 16.7 14.4 25.4 30.5 21.2 30.3 17.2 25.1
Milner Pass	5–30	0	0.0	0.0		10.5
Wyoming						
Bottle Creek Webber Springs Old Battle No. French Creek No. Barrett Creek Ryan Park	6-01 6-01 6-01 6-01 6-01 6-01	0 0 36 59 23 0	0.0 0.0 17.1 27.9 9.5 0.0	0.0 0.0 9.1 10.6 0.0	0.2 3.4 20.5 24.4 9.7	10.7 16.1 34.1 32.4 19.4

* Less than 10 years of record.

Remaining snow pack is nearly normal. Low elevation snow is nearly gone while medium to high elevation snow is still relatively good.

Precipitation over the state during the last five days has helped the farmers considerably. Because of this rainfall some storage may be possible. This will prolong the supply and give farmers a better chance to mature late season crops. Forecasts remain about the same as the May 1st report.



LIST OF COOPERATORS

The following organizations cooperate in snow surveys for the Colorado, Platte, Arkansas and Rio Grande watersheds. Many other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

STATE

Colorado State Engineer
New Mexico State Engineer
Nebraska State Engineer
Colorado Experiment Station
Rocky Mountain Forest and Range Experiment Station

FEDERAL

Department of Agriculture

Forest Service Soil Conservation Service

Department of Interior

Bureau of Reclamation Geological Survey National Park Service Indian Service

Department of Commerce

Weather Bureau

War Department

Army Engineer Corps

Atomic Energy Commission

INVESTOR OWNED UTILITIES

Colorado Public Service Company Western Colorado Power Company Public Service Company of New Mexico

MUNICIPALITIES

City of Denver City of Boulder

WATER USERS ORGANIZATIONS

Arkansas Valley Ditch Association Colorado River Water Conservation District

IRRIGATION PROJECTS

Farmers Reservoir and Irrigation Company San Luis Valley Irrigation District Santa Maria Reservoir Company Costilla Land Company Uncompangre Valley Water Users' Association Twin Lakes Reservoir and Canal Company UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
240 SOUTH HALL
COLORADO STATE UNIVERSITY
FORT COLLINS, COLORADO 80521

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FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"The Conservation of Water begins with the Snow Survey"